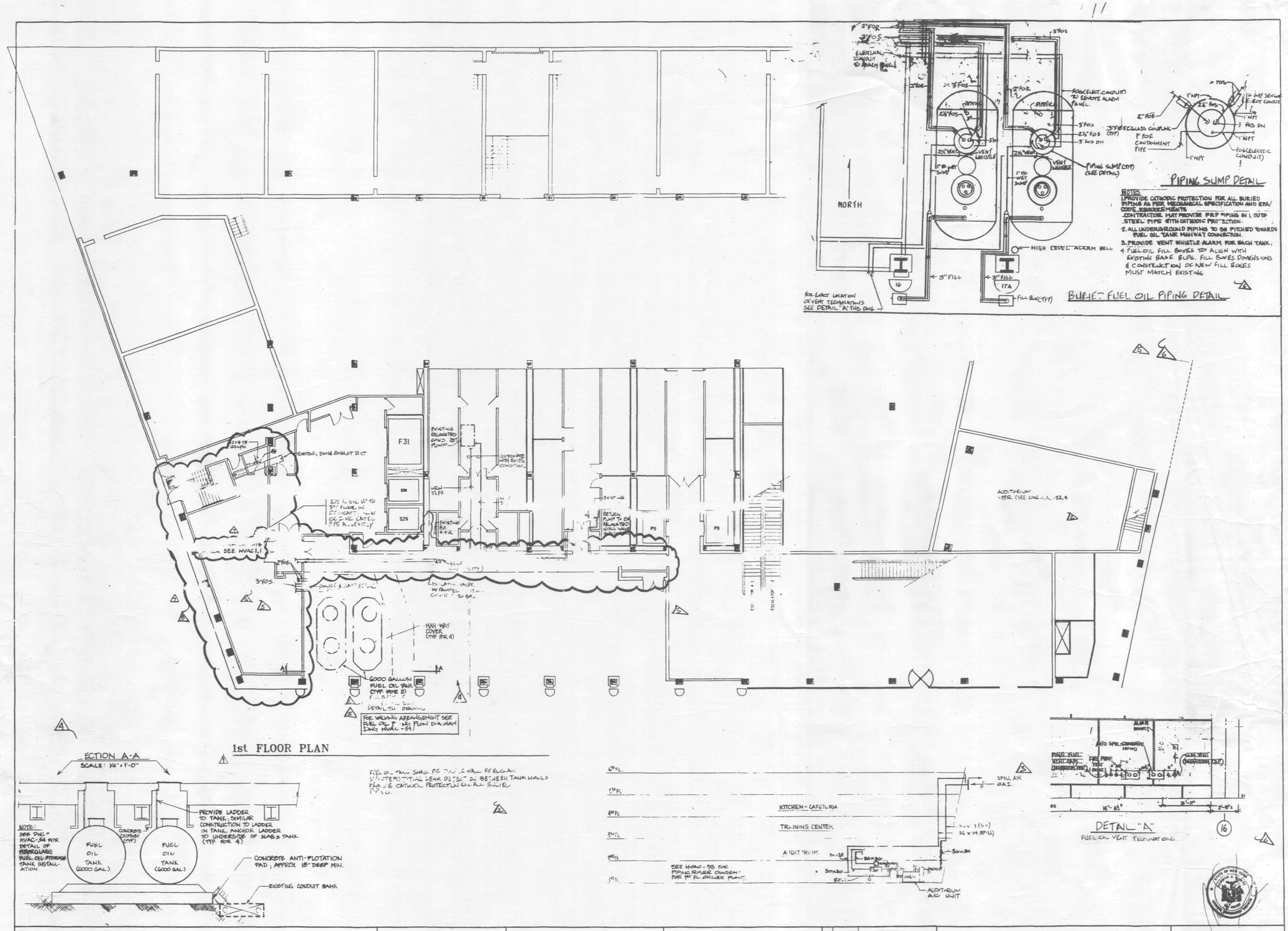

Salomon Brothers Inc

7 WORLD TRADE CENTER HEADQUARTERS
NEW YORK, NEW YORK 10048

KEY PLAN

NOTES
1. SEE ARCH. DWGS. FOR DEMISED PREMISES

LEGEND
- EXISTING BASE BUILDING
- CONNECT TO EXISTING

No.	Date	Revision
1	7-6-90	ISSUED PER BULLETIN #105
2	12-15-90	ISSUED PER BULLETIN 62
3	2-2-90	ISSUED FOR 4th QTR NO. 62
4	11-18-91	ISSUED FOR 5th QTR NO. 5
5	12-15-89	REVISED AS CHECKED
	5-22-89	BASE BLDG MODIFICATIONS
6	5-22-89	REVISED AS CHECKED
7	4-6-89	ISSUED AS CHECKED
8	1-26-89	ISSUED FOR T.A. APPROVAL
	1-20-89	ISSUED FOR CONSTRUCTION
	12-19-88	ISSUED FOR T.A. FOR APPROV
		OF BASE BLDG. MODIFICATION
		PLAN (1 of 5 SHEETS)

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1st FLOOR PLAN

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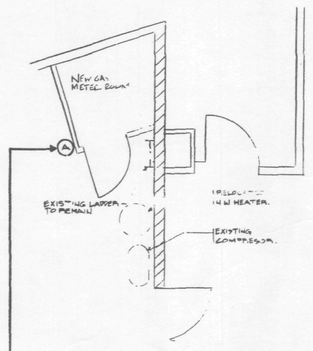
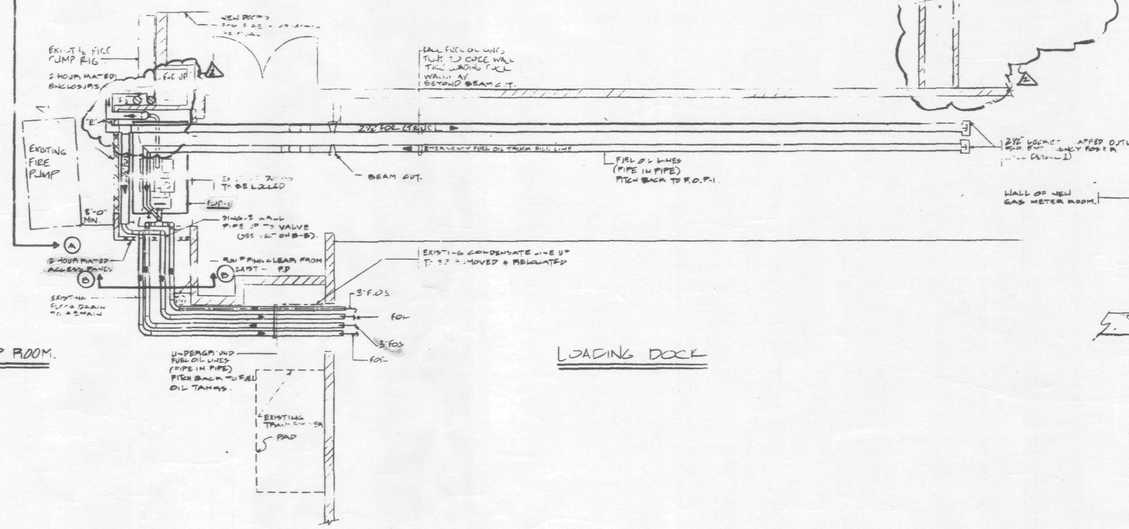
Project No. 8804-8800
Date 28 MAY 90
Scale 1/8" = 1'-0"
Sheet No. HVAC-1

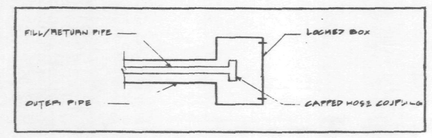
SALOMON BROTHERS (1990)

UTCI-25-S/DISK 2/GROUP 5/HVAC-1

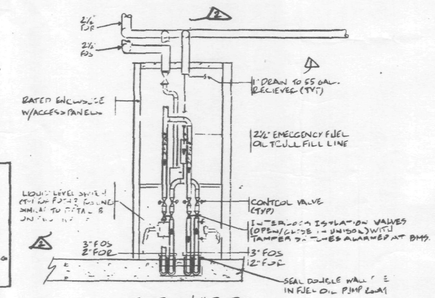




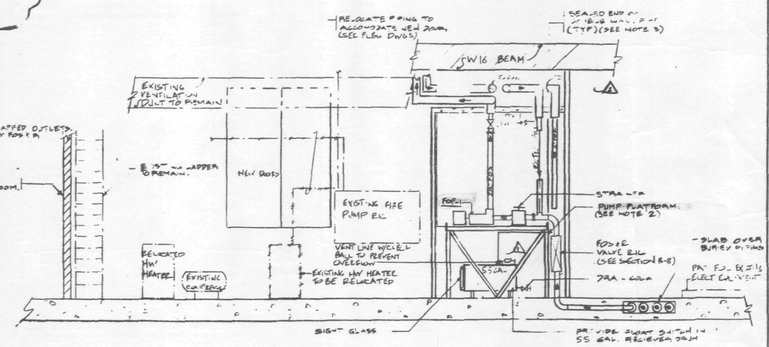
FIRE PUMP ROOM.



DETAIL 1



SECTION "B-B"



SECTION "A-A"

NOTES:
1. MANUAL SEA VALVES TO BE INTERLOCKED CAPABLE OF SUPPLING AND RETURN FROM ONE TANK AT A TIME.
2. PUMP PLATFORM SUITABLE FOR 4'-1" SUBMIT DETAIL.
3. ALL DOUBLE WALL PIPES END 6" INTO ROOM.
4. PUMP TO BE CONFIGURED SUCH THAT ALL REQUIRED MAINTENANCE MAY BE PERFORMED FROM THE FRONT AND LEFT SIDE ONLY. (SEE ARCH. DWGS. FOR LOCATION OF ACCESS DOORS.)
5. CONTROL PANEL TO BE REMOTELY LOCATED
6. 55 GAL. RECEIVER DRUM TO BE RATED FOR 5.7 PSIG MIN.

⚠

LOADING DOCK

Salomon Brothers Inc

7 WORLD TRADE CENTER HEADQUARTERS
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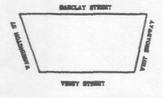

KEY PLAN

NOTES

LEGEND

No.	Date	Revision
⚠	7-6-90	ISSUED FOR BULLETIN #10
⚠	2-20-91	ISSUED FOR BULLETIN NO.68
	2-15-91	ISSUED FOR BULLETIN NO. 68

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FUEL OIL PUMP ROOM PLAN AND SECTION.

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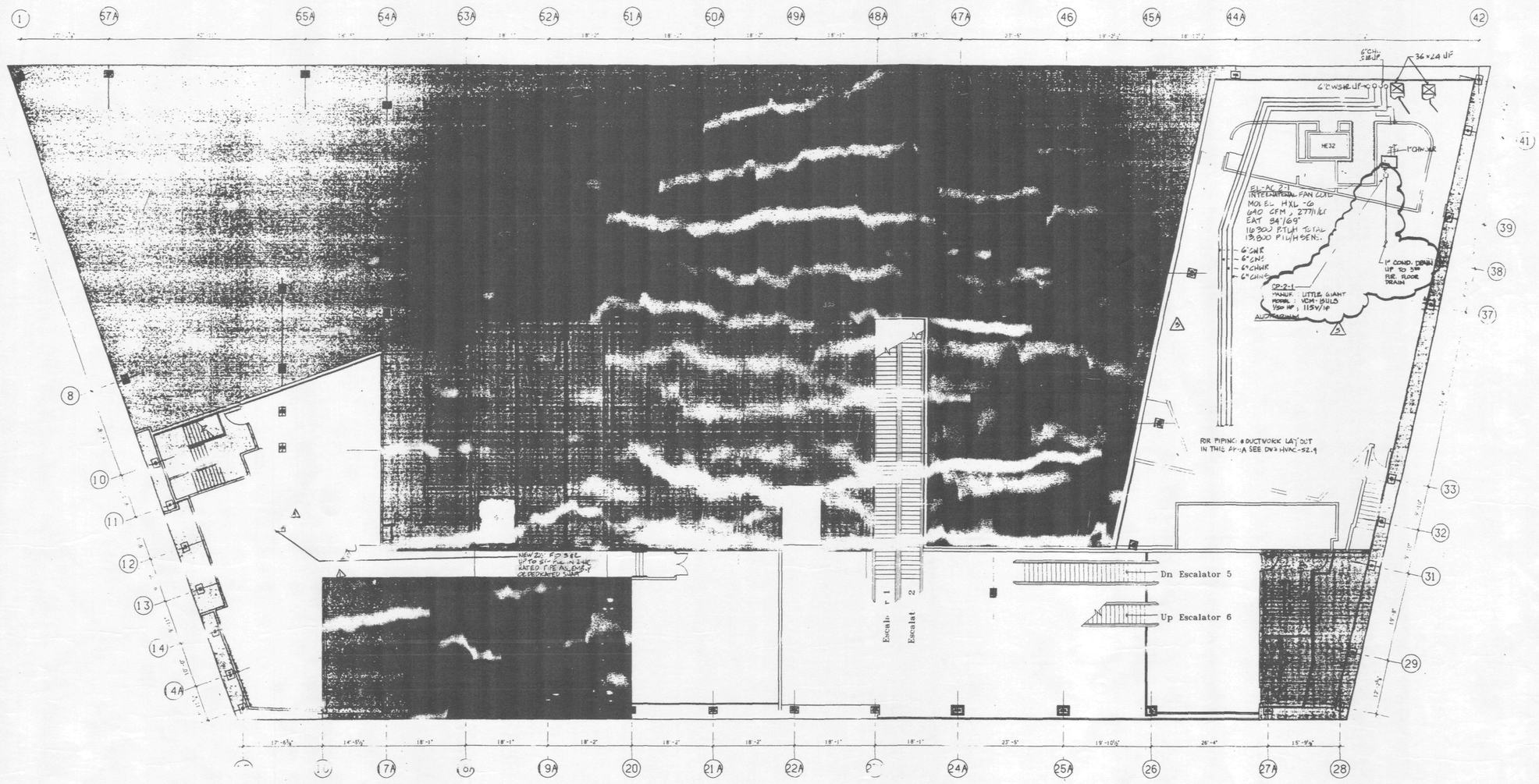
Project No. 89176-000
Sheet No. HVAC-1.1
Date FEB 15 1990
Scale 3/8" = 1'-0"

WTC1-25-S/DISK 2/Group 5/HVAC-1.1



2nd FLOOR PLAN

Salomon Brothers Inc

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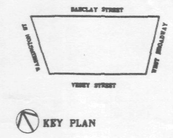
NEW YORK, NEW YORK 10048



KEY PLAN

NOTES
1. SEE ARCH. DWGS. FOR DEMISED PREMISES

LEGEND
EXISTING BASE BUILDING

No.	Date	Revision
A	8-17-90	ISSUED FOR BULLETIN # 116
A	7-6-90	ISSUED FOR BULLETIN # 105
A	8-15-90	REVISED AS LOCATED
		PACK. FLUC. MULTIPLIERS
A	5-6-89	REVISED AS CLOUDED
A	2-1-89	ISSUED FOR P.A. APPROVAL
	11-20-89	ISSUED FOR CONSTRUCTION
	12-19-88	ISSUED TO P.A. FOR APPROVAL OF BASE BLDG. ROOF (FLRS. 1-5 & ROOF)

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2nd FLOOR PLAN

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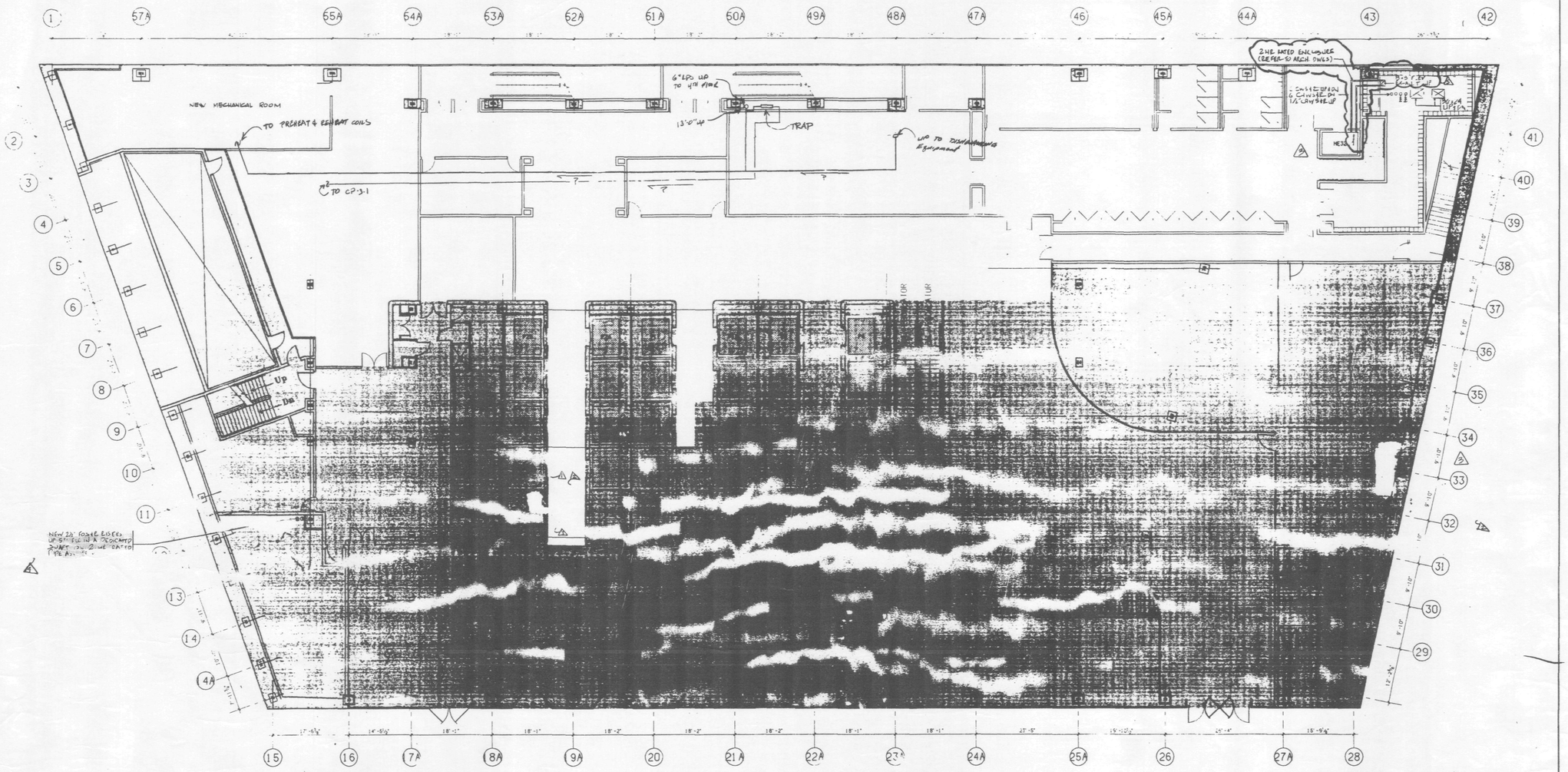
Project No.
Date
Scale 1/8" = 1'-0"
Sheet No. HVAC-2

....FULL TONE....
P5018-FIFCORE26.PB9
P5018-FIRSTHR26.PB9
P5018-FIFTHR26.PB9
P5018-FIFTHR26.PB9
P5018-FIRSTR26.PB9
P5018-FIRCEL26.PB9
P5018-FIRENV26.PB9
P5018-BDR.PLS
P5018-TTLA2.PLS
MON NOV 26 1990
1:42:47
SURVEY
DUAL-[A26Z34]

WTC1-25-S/DISK2/GROUP 5/HVAC-2



3rd FLOOR PLAN

Salomon Brothers Inc

7 WORLD TRADE CENTER HEADQUARTERS
NEW YORK, NEW YORK 10048

KEY PLAN

NOTES
1. SEE ARCH. DWGS. FOR DEMISED PREMISES

LEGEND
EXISTING BASE BUILDING

No.	Date	Revision
A	8-17-90	ISSUED FOR BULLETIN # 111
A	9-6-90	ISSUED FOR BULLETIN #105
A	10-15-90	REVISED NO. CIRCUITS PER PLFA MODIFICATIONS
A	2-6-84	REVISED AS CLOUDED
A	3-1-84	ISSUED FOR PLFA APPROVAL
	1-20-89	ISSUED FOR CONSTRUCTION
	12-19-88	ISSUED TO PA FOR APPROV OF BASE BLDG MODIF (ISSUE 1-5 & CLOUD)

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3rd FLOOR PLAN

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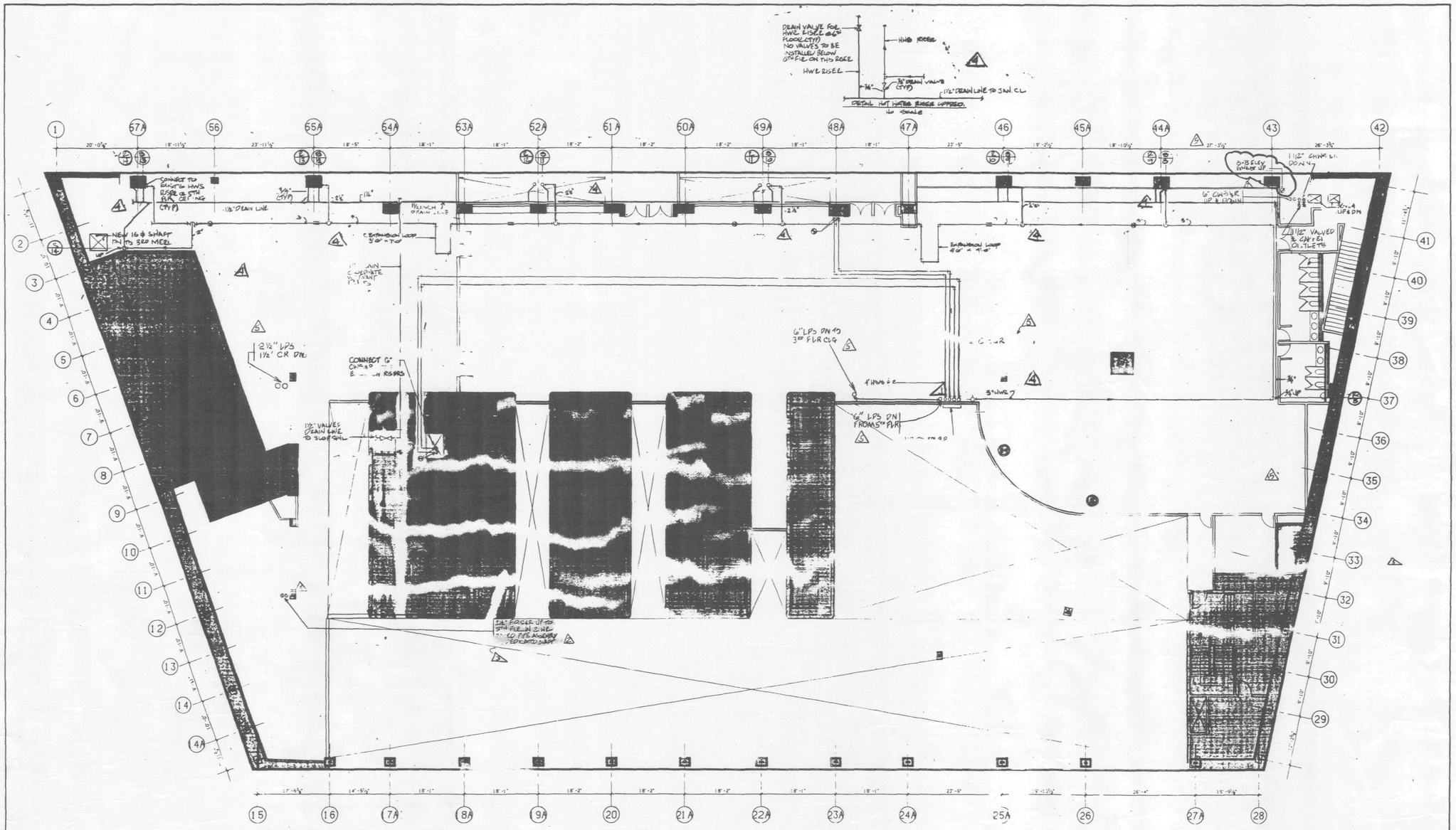
Project No.
Sheet No. HVAC-3
Date
Scale 1/8" = 1'-0"

WTC1-25-5/DISK 2/GRAPHS/HVAC-3



4th FLOOR PLAN

Salomon Brothers Inc

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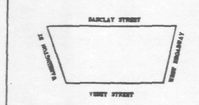
NEW YORK, NEW YORK 10048



NOTES

1. SEE ARCH. DWGS. FOR DEMISED PREMISES

LEGEND

EXIS ING

No.	Date	Revision
1	8-17-90	ISSUED FOR BULLETIN #116
2	7-6-90	ISSUED FOR BULLETIN #105
3	5-24-90	ISSUED AS "NEW" SKETCH
4	4-1-90	ISSUED AS NEW SKETCH
5	8-15-89	REVISED AS CIRCLED
		SHOP DWG MODIFICATIONS
6	8-25-89	REVISED AS CIRCLED
7	6-6-89	REVISED AS CIRCLED
8	3-1-89	ISSUED DCT'A APPROVAL
1	1-20-89	ISSUED FOR CONSTRUCTION
12-19-88		ISSUED TO DCT'A FOR APPROV OF BASE BLDG MODIF (CIRCLED)

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4th FLOOR PLAN

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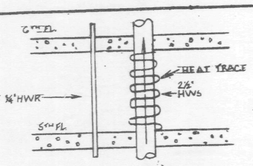
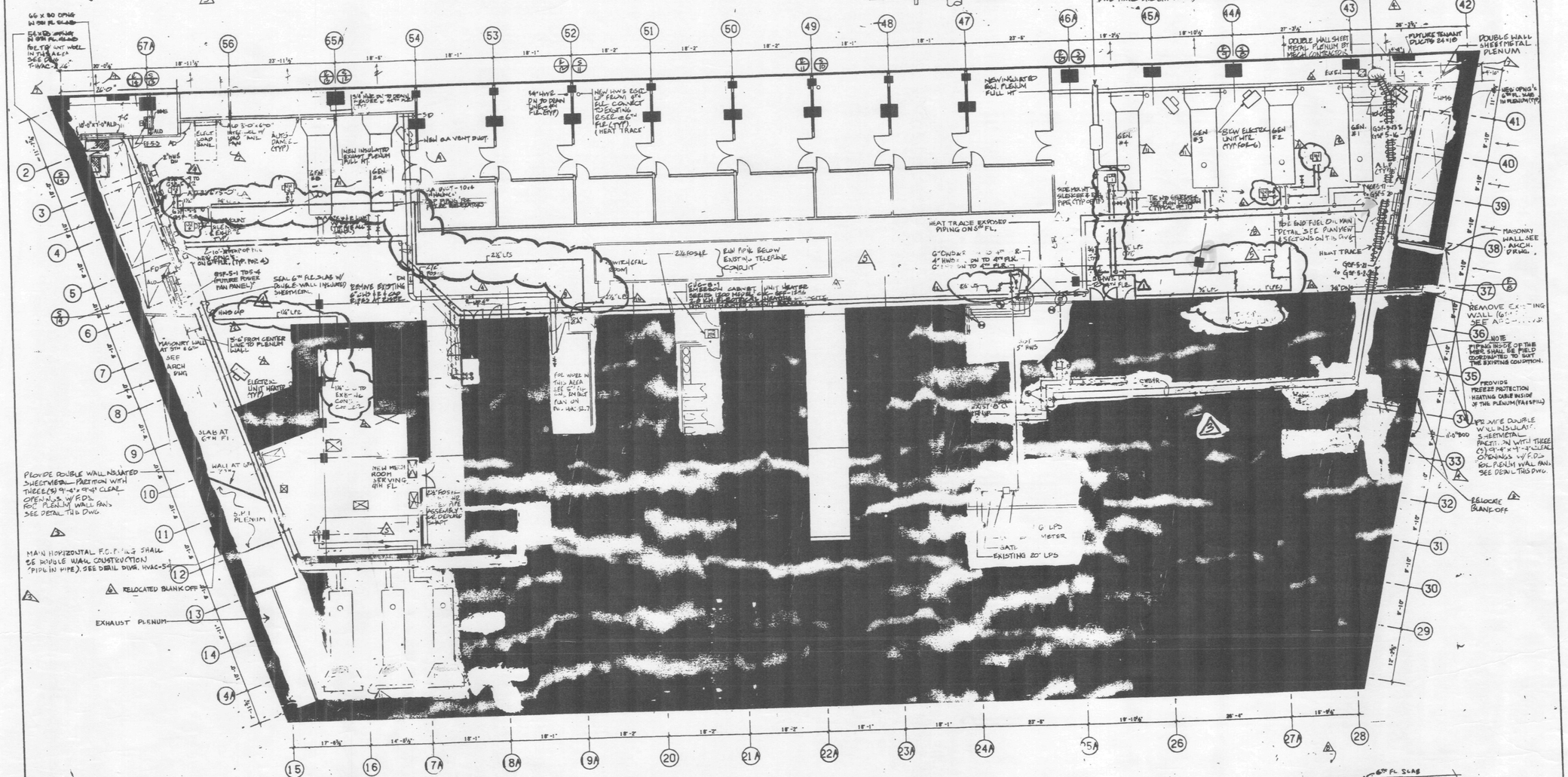
Project No.
Date
Scale 1/8" = 1'-0"
Sheet No. HVAC-4

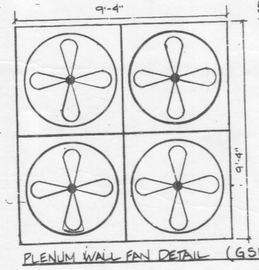
WTCI-25-S/DSK 2/GROUP S/HVAC-4

TYPICAL HEAT TRACING DETAIL S8 → S14
(NO SCALE)

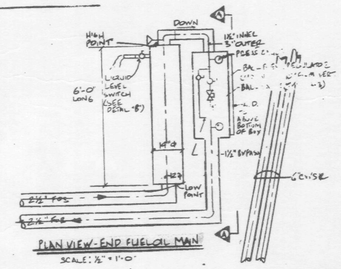




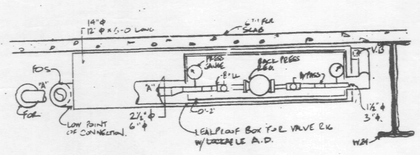
5th FLOOR PLAN



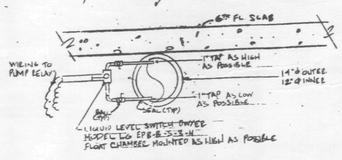
PLENUM WALL FAN DETAIL (GSF-5-1 TO GSF-5-24) & GSF-6-1 TO GSF-6-12)
SCALE: ½" = 1'-0"



PLAN VIEW-END FUEL OIL MAIN
SCALE: ½" = 1'-0"



SECTION A-A END FUEL OIL MAIN
SCALE: 1" = 1'-0"



DETAIL 'B'
END FUEL OIL MAIN - LEVEL INDICATOR

<....FULL TONE....>
P:\01\fs-f3901000.PSS
P:\01\fs-f3P2000.PSS
P:\01\fs-f3P3000.PSS
P:\01\fs-f3P3700.PSS
P:\01\fs-f3P7000.PSS
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P:\01\fs-f3SCR.PSS
P:\01\fs-f3SCRBRDL.PSS
P:\01\fs-SHR_PL.S
P:\01\fs-TTLAB_PL.S
THU JAN 13 1989
ED 64.40
ERROR
DWG-L0000242

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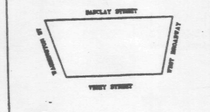

KEY PLAN

NOTES

1. ENTIRE TENANT SPACE & CONCRETE PADS ON THIS FLOOR TO BE COVERED WITH ROBIN MATRIX FLOORING TYPE RM-4 CURVE UP ALL WALLS 6"
2. SEE ARCH. DWGS. FOR DEMISED PREMISES
3. PROVIDE HEAT TRACING FOR THE FOLLOW: 4" HWS & R AND 6" CWS & R ON THRU 5TH FLR SLAB. HWS & R SERS: S8 → S14 UP TO 6" FL SLAB C.W.S. & R. SER THRU BASEMENT.
4. HEAT TRACING NOT BEING PROVIDED FOR HWR RISERS RS → R14. UNDER NO CIRCUMSTANCE SHALL BOYD BALL VALVES BE INSTALLED ON THESE RISERS BELOW THE 6" FLR.

LEGEND

EXISTING BASE BUILDING

No.	Date	Revision
6	3-10-93	REVISED AS CIRCLED
5	12-14-90	REVISED PER BULLETIN #123
4	2-11-90	REVISED PER BULLETIN #116
3	8-3-89	REVISED PER BULLETIN #102
2	7-5-89	REVISED PER BULLETIN #93
1	1-30-89	REVISED SOV BULLETIN #48
0	11-3-88	REVISED AS CIRCLED
9	10-25-88	REVISED AS CIRCLED
8	10-6-88	REVISED AS CIRCLED
7	9-22-88	REVISED AS CIRCLED
6	6-6-88	REVISED AS CIRCLED
5	5-1-88	REVISED PER SUBMITTAL
4	1-20-88	REVISED PER CONSTRUCTION

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5th FLOOR PLAN

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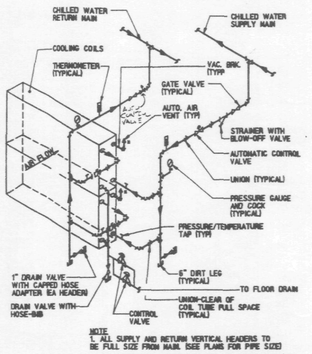
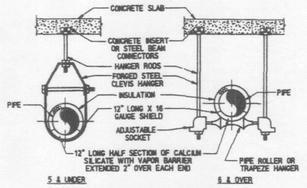
Project No. 8804.00
Date 3-10-93
Sheet No. HVAC-5

NTC1-25-5/DISK 2/GROUP 5/HVAC-5



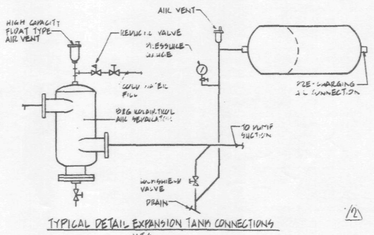
NOTE
1. ALL SUPPLY AND RETURN VERTICAL HEADERS TO BE FULL SIZE FROM MAIN. SEE PLANS FOR PIPE SIZES
2. ALL HORIZONTAL CONNECTIONS TO COILS FROM VERTICAL HEADERS TO BE SIZE OF COIL CONNECTION OUTLET.
3. MAKE PIPING CONNECTIONS TO OBTAIN COUNTERFLOW.

CHILLED WATER COIL PIPING CONNECTION DETAIL (2-WAY VALVE)



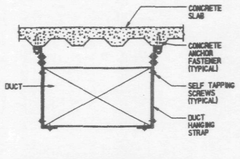
TYPICAL HANGERS FOR CHILLED WATER PIPES.

WHERE STRUCTURAL SLAB DOES NOT PERMIT INSERTS, SUPPORT PIPE FROM STRUCTURE WITH AUXILIARY STEEL IF REQUIRED.



TYPICAL DETAIL EXPANSION TANK CONNECTIONS

N.T.S.



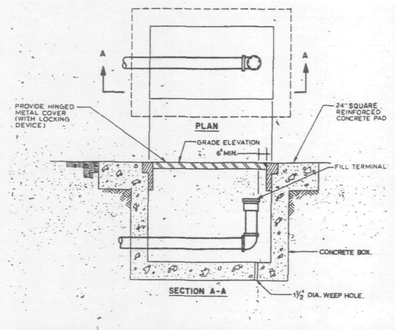
1. PROVIDE BRACING AS FOLLOWS:
FOR DUCTS WITH LARGER DIMENSION 25" TO 40"
1" x 1" x 1/8" ANGLES
FOR DUCTS WITH LARGER DIMENSION 41" TO 90"
1 1/2" x 1 1/2" x 1/8" ANGLES
ANGLES REQUIRED ON 4 SIDES

2. SUSPEND DUCTS WITH GALVANIZED BAND IRON STRAPS 1" x 1/8" SECURELY FASTENED TO THE SIDE OF THE DUCT. STRAPS SUPPORTING DUCTS WIDER THAN 48" TO BE TURNED UNDER BOTTOM OF DUCT AND FASTENED TO BOTTOM AND SIDES.

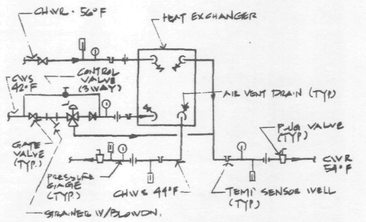
CROSS SECTIONAL AREA (SQ.FT.)	MAX. HANGER SPACING (FT.)
UP TO 4	6
OVER 4 NOT TO EXCEED 10	6

3. WHERE DUCT EXCEEDS 48" IN LARGER DIMENSION BRACING PROVIDE ANGLES ON 4'-0" CENTERS

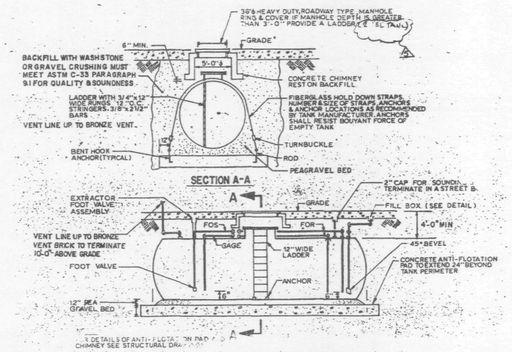
DUCT HANGING DETAIL WITH METAL DECK CONCRETE ANCHOR



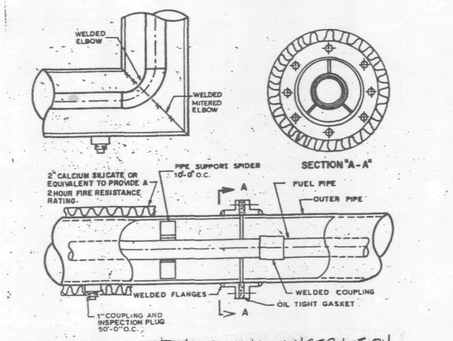
FUEL FILL BOX



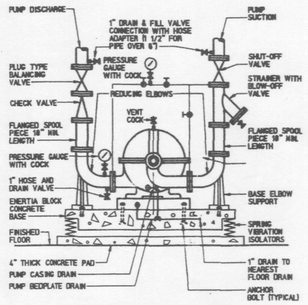
PIPING CONNECTION FOR CH. WATER PLATE HT. EXCHANGER



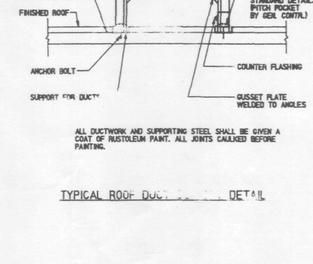
FIBERGLASS FUEL OIL STORAGE TANK



FUEL PIPE DOUBLE WALL CONSTRUCTION

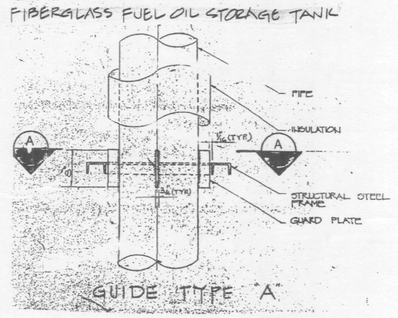


DOUBLE SUCTION PUMP

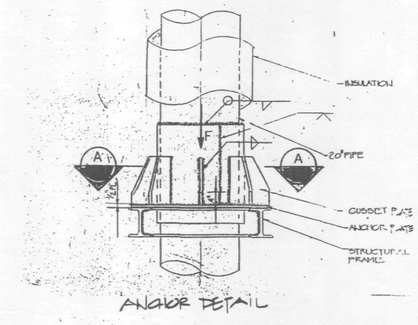


ALL DUCTWORK AND SUPPORTING STEEL SHALL BE GIVEN A COAT OF RUSTOLEUM PAINT. ALL JOINTS CAULKED BEFORE PAINTING.

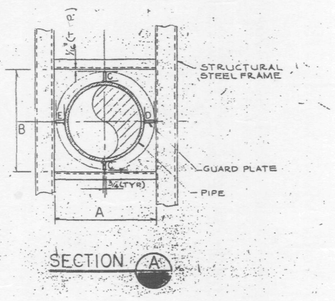
TYPICAL ROOF DUCT _____ DETAIL

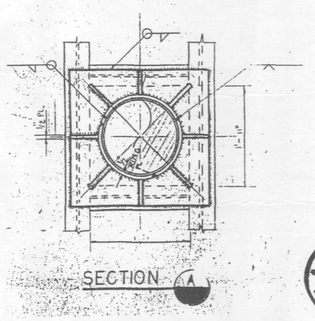


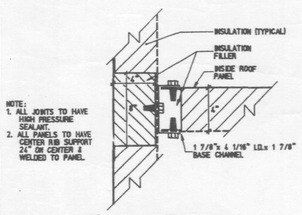
GUIDE TYPE "A"



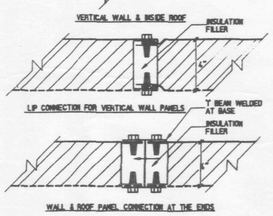
ANCHOR DETAIL



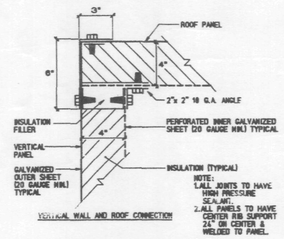




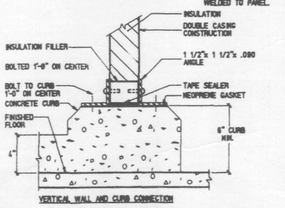
NOTE:
1. ALL JOINTS TO HAVE HIGH PRESSURE SEALANT.
2. ALL PANELS TO HAVE CENTER RIB SUPPORT 24" ON CENTER & WELDED TO PANEL.



DOUBLE CASING PLENUM DETAILS SHEET NO.2



VERTICAL WALL AND ROOF CONNECTION

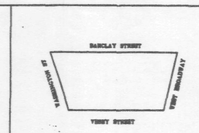


VERTICAL WALL AND CURB CONNECTION

DOUBLE CASING PLENUM DETAILS SHEET NO. 1

Salomon Brothers Inc

7 WORLD TRADE CENTER HEADQUARTERS
NEW YORK, NEW YORK 10048



KEY PLAN

NOTES

LEGEND

No.	Date	Revision
6	8-15-89	REVISED AS CIRCLED. BASE BLDG. MODIFICATION
5	5-22-89	REVISED AS CIRCLED
4	4-28-89	REVISED AS CIRCLED
3	4-1-89	ISSUED TO P.A. FOR APPR.
1	1-20-89	ISSUED FOR CONSTR.

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DETAILS

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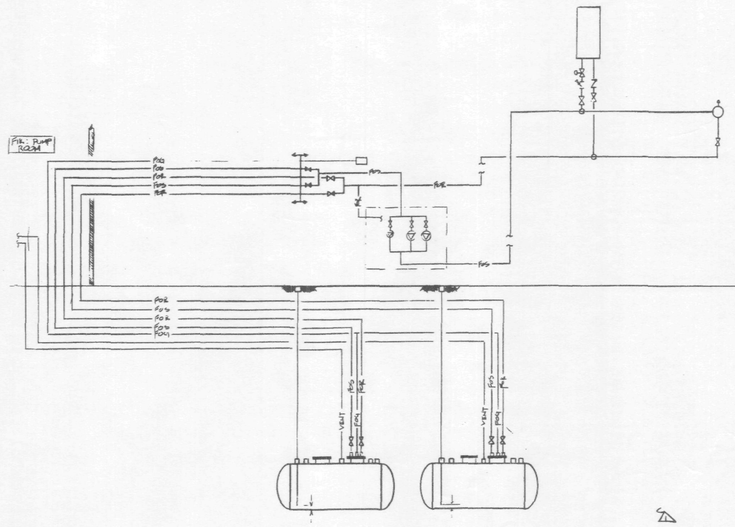
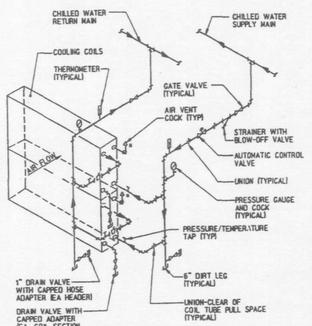
Project No.
Date:
Scale:
Sheet No.
HVAC-54

WTC1-25-S/DWG 2/GROUP 5/HVAC-54

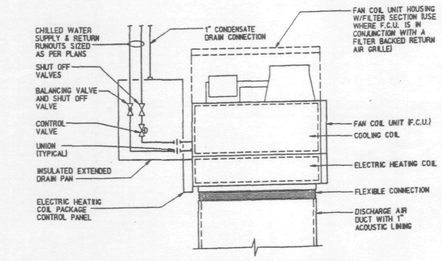


DIESEL FUEL OIL FLOW DIAGRAM

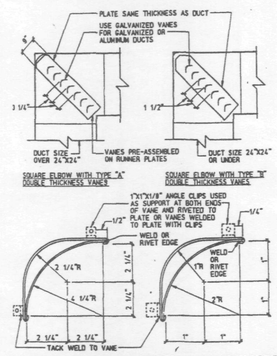


NOTE
1. ALL SUPPLY AND RETURN VERTICAL HEADERS TO BE FULL SIZE FROM MAIN. (SEE PLANS FOR PIPE SIZE)
2. ALL HORIZONTAL CONNECTIONS TO COILS FROM VERTICAL HEADERS TO BE SIZE OF COIL CONNECTION OUTLET.
3. MAKE PIPING CONNECTIONS TO OBTAIN COUNTERFLOW.

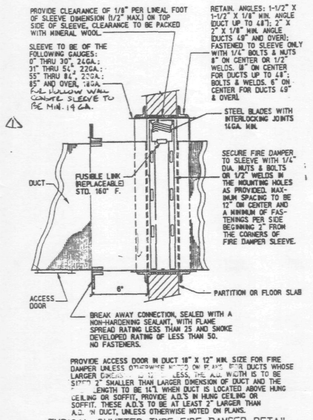
CHILLED WATER COIL PIPING CONNECTION DETAIL (2-WAY VALVE) W-7



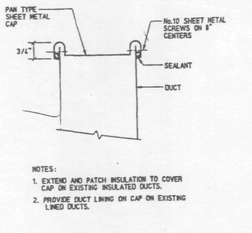
FAN COIL UNIT PIPING CONNECTION DETAIL (HORIZONTAL-2-PIPE) W-9



SQUARE DUCT ELBOWS DETAILS

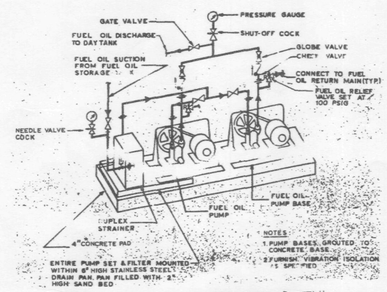


TYPICAL SHUTTER TYPE FIRE DAMPER DETAIL (BLADES OUT OF AIR STREAM)

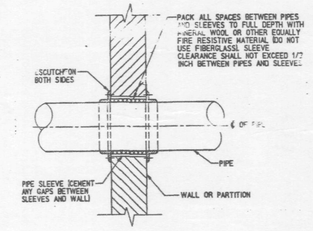


NOTES:
1. EXTEND AND PATCH INSULATION TO COVER CAP ON EXISTING INSULATED DUCTS.
2. PROVIDE DUCT LINING ON CAP ON EXISTING LINED DUCTS.

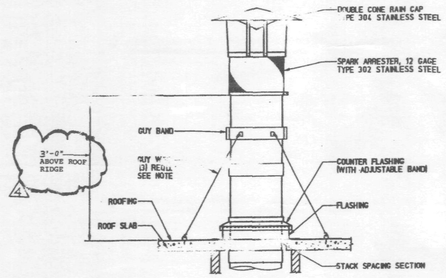
DUCT CAPPING DETAIL



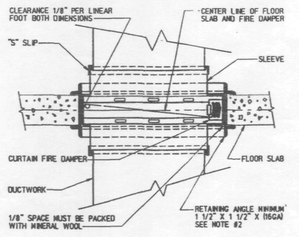
DUPLEX FUEL OIL PUMP SET DETAIL



DETAIL OF PIPING PIERCING FIRE RATED PARTITIONS & WALLS

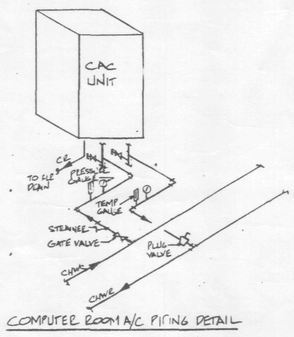


BOILER STACK DETAIL A



NOTE: 1. RETAINING ANGLES MUST LAP STRUCTURAL OPENING 1" MINIMUM AND COVER CORNERS OF OPENINGS. ANGLES MUST NOT BE ATTACHED TO EACH OTHER AT CORNERS.
2. SECURE RETAINING ANGLE TO SLEEVE ONLY ON 8" CENTERS WITH:
1. 1/2" LONG WELDS OR
2. 1/4" LONG BOLTS AND NUTS OR
3. #10 STEEL SCREWS OR
4. MINIMUM 3/16" STEEL RIVETS

OUT OF AIR STREAM VERTICAL FIRE DAMPER



COMPUTER ROOM A/C PIPING DETAIL

Salomon Brothers Inc

7 WORLD TRADE CENTER HEADQUARTERS
NEW YORK, NEW YORK 10048

NOTES

LEGEND

No.	Date	Revision
5	9-18-90	ISSUED FOR BULLETIN #150
4	8-17-90	ISSUED FOR BULLETIN #116
3	8-15-89	REVISED AS CIRCLED
2	3-6-89	REVISED AS CIRCLED (BASE BLDG MODIFICATION)
1	2-15-89	ISSUED TO PA FOR APPROVAL

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DETAILS

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Project No.
Date 3-1-89
Scale NONE
Sheet No. HVAC-54.1

WTC1-25-5/DGN2/GRAND5/HVAC-541

HVAC SYSTEMS SCHEDULE

DESIGNATION	SERVICE	LOCATION	TOTAL AIR QUANTITY CFM	WINTER QUANTITY CFM	OUTSIDE AIR CFM	FILTER (CAMBRIDGE AS STANDARD) A: AIRKING 24 x 24 x 12 WITH PREFILTER (AGE 6.5) G: MENDFLEAT 24×24×8					COOLING COIL AIR SIDE					WATER SIDE					ELECTRIC HEATING COIL								FAN														VIBRATION ISOLATION		REMARKS	DRAWING NO.
						AIR QUANTITY CFM	TYPE	MINIMUM EFFICIENCY %	ASHRAE 52-76	INITIAL ΔP IN. OF WATER	ENT. TEMP. DRY BULB DEGREES (F)	ENT. TEMP. WET BULB DEGREES (F)	LVG. TEMP. DRY BULB DEGREES (F)	LVG. TEMP. WET BULB DEGREES (F)	MAXIMUM SECTION IN. OF WATER	FLOW RATE GPM	ENT. TEMP. DEGREES (F)	LVG. TEMP. DEGREES (F)	MAXIMUM PRESS. DROP FEET OF WATER	TOTAL COOLING CAPACITY MBH	NUMBER OF SECTIONS	SECTION HEIGHT INCHES	SECTION LENGTH INCHES	TOTAL FACE AREA (SQ.FT.)	FACE VELOCITY FPM	SERIES SURFACE B(P.D)	KW	HEATING CAPACITY MBH	VOLTS/PHASE	HEIGHT x WIDTH INCHES	NO. OF STEPS	FACE VELOCITY FPM	MAXIMUM QUANTITY CFM	MINIMUM AIR QUANTITY CFM	TOTAL STATIC PRESSURE (INCHES WATER)	MAX. FAN SPEED RPM	MAXIMUM TIP VELOCITY FPM	WHEEL DIAMETER INCHES	WIDTH & INLET	ARRANGEMENT	DISCHARGE DIRECTION	CLASS	TYPE	MANUFACTURER	SIZE	MOTOR BHP	MINIMUM MOTOR HP	MOTOR RPM	MOTOR LOCATION	VOLTS/PHASE	CONTROL	TYPE	DEFLECTION		
AC-1	O.A. UNIT	PENTHOUSE 47TH FLR.	110,000	–	110,000	110,000	A	80-85	0.35	1.0	24×24	56	110,000	91.0	74.0	55.0	54.6	.10	1200	44	56	28.7	7200	12	33	78	214.5	513	91/8	–	–	–	–	–	–	75,250	55,000	5.5	1770		45		4	HORIZ.	1	VANE AXIAL	JOY	68-28 DIVIDED	80	100	1770	–	460/3				UNDER ONE (E) FAN @ 38,000 CFM 1.03" (EA) PRESS-MORE (4) FAN @ 78,250 CFM	
AC-2	MER	---	20,000	–	20,000	20,000	C	25-30	0.3	1.0	24×24	13	20,000	91.0	74.0	59.0	58.3	.65	1631	44	58	28.0	1180				40.5	494	125/4	20,000	0	55		342	11.67	460/3	–	–	500	20,000	–	3.0	1244	1463	27	DWDI	–	TOP HORIZ.	1	CENT.	TRANE	44	13.19	150	1770	–	460/3					
AHU-1	AUDITORIUM	1ST FLR. MEZZ.	10,000	7,000	3,000	10,000	A	80-85	0.35	1.0			10,000	80.5	67.0	53.5	53.3	.81	649	44	54	8.7	494	1	30	99	205	485	124/8	10,000	60	77	0.1	55	100					10,000		5.75	1073	2250	18.25	DWDI		TOP HORIZ.	1	F.C.	TRANE	21-E	10.74	150			460/3				
AHU-2	AUDITORIUM	36TH FLR. MEZZ.	14,000	11,100	2900	14,000	A	80-85	0.35	1.0			14,000	77.7	64.9	54.8	54.4	0.6	748	44	56	5.3	449.5	2	24 15	105	30.6	460	W/6											14,000	–	4.00	836		20.0	DWDI		UPLIGHT	1	F.C.	TRANE	81-B	14.8	20.0	1770	–		SLF-H	2"	TRANE COMPARTMENT-CLIMATE CHANGER - VERTICAL	
AHU-3	43RD FLR.	43RD FLR.	21,000	11,600	1600	21,000	C	25-30	0.35	1.0			21,000	76.1	63.4	52.0	51.9	0.72	1165	44	56	5.6	700.0	3	24 15	84	45.5	461	122/6	–	–	–	–	–	–	21,000	–	4.25	870	3200	25.0	DWDI		TOP HORIZ.	1	CENT	TRANE	22-C	24.5	34.0				SPR-H	1.5"	TRANE COMPARTMENT CLIMATE CHANGER	
AHU-4	46TH FLR. 47TH FLR.	46TH FLR. 47TH FLR.	23,000	21,500	1500	23,000	C	25-30	0.35	1.0			23,000	76.1	63.4	52.0	51.9	0.72	1275	44	56	6.0	746.0	3	24 15	84	45.5	505	124/6	–	–	–	–	–	–	23,000	–	4.25	805	3350	25.0	DWDI		TOP HORIZ.	1	CENT	TRANE	22-C	27.6	40.0				SPR-H	1.5"	TRANE COMPARTMENT CLIMATE CHANGER	
EF-AC-43	ELEV. M.R.	43RD FLR	1400	1400	0	1400	FLAT	30	–	–	–	–	1400	84	69	60	–	–	12	44	56	14.8	46.5	38	–	–	–	–	–	–	–	–	–	–	–	1400	1400	–	–	–	–	INTERNAL		48"L x 16" W x 16" H	–	1.5	–	–				FAN COIL UNIT	
EF-AC-47	-"-	47TH FLR	1400	1400	0	1400	FLAT	30	–	–	–	–	1400	84	69	60	–	–	12	44	56	14.8	46.9	38	–	–	–	–	–	–	–	–	–	–	–	1400	1400	–	–	–	–	-"-		-"-	–	1.5	–	–				-"-	
AHU-41 THRU 46 AHU-43 THRU 46	TRADING LEGEND	47MT FL. 42ND FLR.	22,000	22,000	0	22,000	A+G	80-85	0.35	1.0	–	–	22,000	80.0	66.0	54.4	54.1	.86	1177	44	56	7.0	700	3	–	–	42	524	18/6	–	–	–	–	–	–	22,000	–	3.9	892	–	–	–	–	TOP HORIZ.	1	CENT.	TRANE	22-C	28.3	30	1750	–	460/3				TRANE COMPARTMENT/NOTE MAIN HEIGHT 9'-10"	
AHU-42	41ST FLR.	41ST FLR.	24,250	16,950	7300	24,250	C	25-30	0.35	1.0			24,250	78.9	65.2	52.0	51.9	0.34	1256	44	56	6.6	953.3	3	24 15	96	52	466	124/6	24,250	–	–	–	–	–	–	24,250	–	4.25	739	–	30	DWDI		TOP HORIZ.	1	CENT	TRANE	27-C	26.3	30	1750	–		SPR-H	1.5"	TRANE COMPARTMENT CLIMATE CHANGER	
AHU-43 THRU 46	39TH FLR. 40TH FLR. 42ND FLR. 43RD FLR.	39TH FLR. 40TH FLR. 42ND FLR. 43RD FLR.	27,000	24,800	2200	27,000	C	25-30	0.35	1.0	–	–	27,000	77.0	63.0	54.2	55.6	0.73	1269	44	56	4.3	750	3	24 15	90	52	519	83/6	–	–	–	–	–	–	27,000	–	4.25			30	DWDI		TOP HORIZ.	1	CENT.	TRANE	27-C	26.3	30	1750	–		SPR-H	1.5"	TRANE COMPARTMENT CLIMATE CHANGER	
AC-47-1	47TH FLR MER	47TH FLR	10,000	cp	10,000	10,000	C	25-30	0.35	1.0			10,000	69.0	57.0	52.7	51.0		677.0	44	56		400.8							SEE NOTE BELOW FOR HW HEATING COIL																												
A-5-1	47TH DINING	5TH FLR.	11,000	(500)	3,000	11,000							11,000	76.3	67.2	56.5	54.0						499.8																													
AHU-44 THRU 46	44TH FLR. W. WING	44TH FLR. W. WING	12,250	11,000	1650	12,250	H	80-85	0.35	1.0			12,250	78.3	66.8	53.5		0.88	756	44	56	9.0	453.8		33	108	24.1	525												12,250		3.25	738	3000	25		2	SCROLL W/BLT	1	CENT.	TRANE	25-B	10.8	15		460/3		SPRING ISOLATORS			

PUMP SCHEDULE

DESIGNATION	SERVICE	LOCATION	FLOW RATE GPM	TOTAL PUMP HEAD FEET OF WATER	EST. BHP	CASING PRESSURE (PSIG)	MOTOR DATA MINIMUM MOTOR HP	RPM	VOLTS/PHASE	MODEL NUMBER	MINIMUM PUMP EFFICIENCY (%)	PUMP TYPE	MANUFACTURER	CONTROL	REMARKS	DRAWING NO.
CHWP-1,2,3	CHILLED WATER	PENTHOUSE MER.	2500	140		125	150	1750	460/3	10LZ-182	80	SPLIT CASE			BASED ON WEINMAN PUMPS	
CWP-1,2	CONDENSING WATER	---	2500	100		125	100	1750	460/3	8LZ-152	82	---			--- --- ---	
FOP-1	DIESEL GENERATORS	7TH FLR.	70	50	5		7.5	1750	460/3	4357175	–	GEARS			INSTALLED BY OTHERS UTILITIES	
P-1-1 P-1-2	CHILLED WATER	1ST FLR. AUDITOR.	50	125		125	25	1750	460/3	4LZ	85	CENTR.	B&G		BELL & GOSSETT 4BE600 150	
P-1-3 P-1-4	COND. WATER	1ST FLR. AUDITOR.	1,200	125		350	25	1750	460/3	4LC	85	CENTR.	B&G		BELL & GOSSETT 4BE600 150	
P-47-1 P-47-2	CHILLED WATER	47TH FLR. MER.	2500	120		125	125	1750	460/3	10LZ-182	73	SPLIT CASE			SALES: WEINMAN PUMP	
P-47-3	CONDENSER WATER	47TH FLR.	250	80		125	75	1750	460/3	8LZ-182	78	SPLIT CASE			SALES: WEINMAN PUMP	

EXPANSION TANK SCHEDULE (BELL & GOSSETT AS STD)

DESIGNATION	SERVICE	LOCATION	SYSTEM VOLUME (GALLONS)	TEMPERATURE (DEGREES F) COLD TEMP.	TEMPERATURE (DEGREES F) HOT TEMP.	PRESSURE (PSIG) FILL	PRESSURE (PSIG) OPERATING	PRESSURE (PSIG) ACCEPTANCE	TANK SIZE (INCHES) TOTAL	TANK SIZE (INCHES) HEIGHT	TANK SIZE (INCHES) DIAMETER	MAKE-UP PUMP DATA MODEL NUMBER	MAKE-UP PUMP DATA CHARGE RATE (GPM)	MAKE-UP PUMP DATA FLOW RATE GPM	MAKE-UP PUMP DATA HP	MAKE-UP PUMP DATA VOLTS/PHASE	MAKE-UP PUMP DATA RPM	MAKE-UP PUMP DATA MODEL NUMBER	MAKE-UP PUMP DATA RECEIVER GALLONS	MAKE-UP PUMP DATA PUMP NUMBER	MAKE-UP PUMP DATA OPERATING WEIGHT LBS.	REMARKS	DRAWING NO.
1	CHW	PENTHOUSE MER		40	80	20	102	80	35			B-400											
	CHW	1ST FL. MER		40	90	80	100	11-1	38-6	42	16	B-600											
	CHW	47TH FL. MER		40	90	20	102	84.6	15 5	66	28	B-900											

PLATE AND FRAME HEAT EXCHANGER SCHEDULE

BASED ON ALFA-LAVAL

DESIGNATION	SERVICE	LOCATION	PRIMARY SIDE FLOW RATE GPM	PRIMARY SIDE INLET TEMP. DEGREES (F)	PRIMARY SIDE OUTLET TEMP. DEGREES (F)	PRIMARY SIDE LOAD MBH	PRIMARY SIDE MAX. P.D. FT. OF WATER	PRIMARY SIDE MAX. WORKING PRESSURE	PRIMARY SIDE SURFACE AREA SQ FT	PRIMARY SIDE FOULING FACTOR	SECONDARY SIDE FLOW RATE GPM	SECONDARY SIDE INLET TEMP. DEGREES F.	SECONDARY SIDE OUTLET TEMP. DEGREES F.	SECONDARY SIDE LOAD MBH	SECONDARY SIDE MAX. P.D. FT. OF H2O	SECONDARY SIDE MAX. WKG. HYDRAULIC PRESSURE	SECONDARY SIDE SURFACE AREA SQ. FT.	SECONDARY SIDE FOULING FACTOR	PLATE SIZE	DIMENSIONS (OVERALL FRAME SIZE INCHES) HEIGHT	DIMENSIONS (OVERALL FRAME SIZE INCHES) LENGTH	DIMENSIONS (OVERALL FRAME SIZE INCHES) WIDTH	OPERATING WEIGHT LBS.	REMARKS	DRAWING NO.
HX-1&2	FREE COOLING	PENTHOUSE MER	2500	40	55	3,000	12.5	100		0.0001	2500	50	44	3,000	22.5	100									
HX-1-1	FREE COOLING	47TH FL. MER	600	41	53	3,600	13	300		0.0001	600	50	---	---				0.0001		82	84	29	9,200	TYPE 249-BFD	

WATER CHILLER SCHEDULE

DESIGNATION	LOCATION	NOMINAL TONS	EVAPORATOR FLOW RATE GPM	EVAPORATOR ENT. WATER TEMPERATURE DEGREES (F)	EVAPORATOR LVG. WATER TEMPERATURE DEGREES (F)	EVAPORATOR MAX. P.D. FT. OF WATER	EVAPORATOR MAX. VELOCITY FT/SEC	EVAPORATOR NO. OF PASSES	EVAPORATOR FOULING FACTOR	EVAPORATOR MAX. WORKING PRESSURE PSIG	CONDENSER FLOW RATE GPM	CONDENSER ENT. WATER TEMPERATURE DEGREES (F)	CONDENSER LVG. WATER TEMPERATURE DEGREES (F)	CONDENSER MAX. P.D. FT. OF WATER	CONDENSER MAX. VELOCITY FT/SEC	CONDENSER NO. OF PASSES	CONDENSER FOULING FACTOR	CONDENSER MAX. WORKING PRESSURE PSIG	ELEC. DATA INPUT KW	ELEC. DATA FLA	ELEC. DATA LRA	ELEC. DATA VOLTS/PHASE	UNIT TYPE	UNIT SIZE	UNIT MODEL NUMBER	OPERATING WEIGHT (LBS)	REMARKS
CH-1-1	1ST FLR MECH	251	9,500	56	44	10.8	–	–	.0005	125	500	90	100	3.6	–	–	.0005	350	244	–	–	460/3	NOT	–	R-134A		ZEMA CS BASED ON MULTI-STACK MODULA-CHILLER (7) MODULES TOTAL

FAN SCHEDULE

DESIGNATION	SERVICE	LOCATION	MAXIMUM AIR QUANTITY (CFM)	MINIMUM AIR QUANTITY (CFM)	TOTAL STATIC PRESSURE (IN. OF WATER)	FAN SPEED (RPM)	OUTLET VELOCITY (FPM)	WHEEL DIAMETER	WIDTH & INLET	DISCHARGE DIRECTION	TYPE	MOTOR MODEL NUMBER	MOTOR H.P. & B.H.P.	MOTOR RPM	MOTOR VOLTS/PHASE	MOTOR LOCATION	MOTOR CONTROL	VIBRATION ISOLATION TYPE	VIBRATION ISOLATION DEFLECTION	REMARKS	DRAWING NO.
GSF-1	---	47TH FLOOR	38,000																		
SGF-1 SGF-2 SGF-3 SGF-4	GREENHOUSE	47TH FLOOR	20,000	–	0.665	1140	–					SPN-90	–	–	–	–	–			BASED ON GREENHECK	
SX-1-1	HALON EXHAUST	35TH FLOOR	4500		0.375	1390	–	24"				CB-245	0.75	–	460/3					BASED ON PENN PROPELLER PROVIDE EXPLOSION PROOF MOTOR & STARTER.	
SX-2-1	BATTERY EXH	35TH FLOOR	1500		0.375	1055	–	24"				CB-245	0.34	–	460/3					BASED ON PENN PROPELLER - PROVIDE EXPLOSION PROOF MOTOR FOR FLOOR	
TX-47-1	TOILET EXH	47TH FLOOR	27,340		4.5	1470	2700	–	–	–	CLARK FC	Q-20	29.23	40	–	460/3	–	–	–	BASED ON TRANE	
SX-47-1	ELEV. EXH	47TH FLOOR	18,000		3.5	1689	2700	–	–	–	CLARK FC	Q-20	20.0	30	–	460/3	–	–	–	BASED ON TRANE	
SX-47-2	ELEV. EXH	47TH FLOOR	21,920		3.0	1504	–	–	–	–	CLARK FC	Q-36	18.95	25	–	460/3	–	–	–	BASED ON TRANE	
SX-41-1	SMOKE EXH	47TH FLOOR	34,000		2.25	–	–	–	–	–	CLARK FC	Q-60	65.7	75	–	460/3	–	–	–	BASED ON TRANE	
SX-42-1	SMOKE EXH	42ND FLOOR	15560		0.75	750	–	42"	–	–	–	SPN-42	5.61	5.0	–	460/3	–	–	–	BASED ON GREENHECK	
SX-40-1	↓	40TH FLOOR	↓		↓	↓	–	↓	–	–	–	↓	↓	↓	–	↓	–	–	–	BASED ON GREENHECK	
SX-41-1 SX-42-1	ELEV EXH	41ST FLOOR	15,560		0.75	750		42"				SPN-42	5.61	5.0						BASED ON GREENHECK	
EF-1-1	AUDITORIUM	1ST FLOOR	10,000		1.75	1253	1764	30"	–	–	–	Q-30	6.46	5.0	–	–	–	–	–	BASED ON TRANE	
EF-SX-38-1	AUDITORIUM	38TH FLOOR	14,000		1.50	1230	1864	33"	–	–	–	Q-33	5.7	7.5	–	–	–	W36	2"	BASED ON TRANE/TWO SPEED FAN	
OA-1-B	AUDITORIUM	38TH FLOOR	4500		1.75			19"	–	–	–	Q-19	1.25	3.0	–	–	–			BASED ON TRANE	
EF-47-1	47TH MECH	47TH FLOOR	10,000		0.50	525	–	42"	–	–	–	BB-42	2.93	5.0	–	–	–	–	–	BASED ON PENN VENT.	
TX-4-1	TOILET EXH.	TOILET RM 47TH	1,100		1.00	1550	–	–	–	–	TUBE AXIAL CABINET	E-13	–	340W	1650	115/1	–	–	–	--- --- ---	
EF-5-3	DC-5-1	5TH FLR.	17,400		0.625	710						SPN-42		50		460/3				BASED ON GREENHECK	
SX-5-2	3RD FLR.	5TH FLR. IBC	13,000	–	1.50	1450	2521	30"	–	–	BELT DRIVE	Q-36	6.48	7.5	1800	460/3	–	–	–	BASED ON TRANE	
EF-AC-2-2	2ND FL. ELEV. MACH.	47TH FL. MER	10,000	–	2.0	1540	2665	33"	–	–	BELT DRIVE	Q-36	10.9	15	–	460/3	–	–	–	BASED ON TRANE	
ELX-5-1	3RD FL. ELEV. MACH.	5TH FLR	125	–	0.375	175	–	–	–	–	–	XQ60	–	1/12	1750	115/1	–	–	–	BASED ON PENN - PROVIDE CUR-B DISCONNECT SWITCH AND T-STAT CONTROLLED AUTO DAMPER	

COMPUTER ROOM AIR CONDITIONING UNIT (CHILLED WATER) SCHEDULE (LIEBERT AS STD)

DESIGNATION	SERVICE	LOCATION	FAN AIR QUANTITY (CFM)	FAN NO. OF FANS	FAN EXT. STATIC PRESS. (FT. OF WATER)	FAN VOLTS/PHASE	FAN MOTOR RPM	FAN MOTOR HP	FAN DRIVE	COOLING COIL AIR SIDE ENT. TEMP. DRY BULB (DEG. F)	COOLING COIL AIR SIDE ENT. TEMP. WET BULB (DEG. F)	COOLING COIL AIR SIDE TOTAL CAPACITY (MBH)	COOLING COIL AIR SIDE SENSIBLE CAPACITY (MBH)	COOLING COIL WATER SIDE WATER FLOW RATE (GPM)	COOLING COIL WATER SIDE ENT. WATER TEMP. (DEGREES F)	COOLING COIL WATER SIDE LVG. WATER TEMP. (DEGREES F)	COOLING COIL WATER SIDE PRESS. DROP (FT. OF WATER)	COOLING COIL VALVE TYPE	COOLING COIL COIL TYPE	COOLING COIL NUMBER OF ROWS	COOLING COIL TOTAL FACE AREA (SQ. FT.)	COOLING COIL FACE VELOCITY (FPM)	ELEC. REHEAT NUMBER OF STAGES	ELEC. REHEAT KW	ELEC. REHEAT VOLT/PHASE	ELEC. REHEAT TOTAL CAPACITY MBH	HUMIDIFIER F.L.A.	HUMIDIFIER CAPACITY (LBS./HR.)	HUMIDIFIER TYPE	FILTER TYPE	FILTER FACE AREA (SQ. FT.)	FILTER FACE VELOCITY (FPM)	CONDENSATE PUMP FLOW RATE (GPM)	CONDENSATE PUMP TOTAL PUMP HEAD (FT. OF WATER)	TOTAL UNIT F.L.A.	VIBRATION ISOLATION	MODEL TRIGGER	REMARKS	DRAWING NO.
1	LIFT & BATTERY ENT.	35TH FLR.	5065	1	0.3	460/3	–	2.0	BELT	72.0	58.7	85.6	85.1	14.3	44	56	–	–	7	3	11.670	450	–	–	–	–	–	–	–	FLAT	8.0	656	–	–	–	–	147-C	SEE NOTES THIS DWG	
2	LIFT & BATTERY ENT.	35TH FLR.	12,000	2	0.3	460/3	1	7.5	BELT	72.0	58.7	295.9	285.9	49.3	44	56	–	–	1	6	25.0	496	–	–	–	–	–	–	–	FLAT	16.0	750	–	–	–	–	529-C	SEE NOTES THIS DWG	

NOTES

39TH FLOOR CAC UNITS
① CAC-35-27
② CAC-35-23 THRU 35-26 INCLUSIVE

44TH FLOOR CAC-UNITS
① CAC-44-26
② CAC-44-22 THRU 44-25 INCLUSIVE

NOTES

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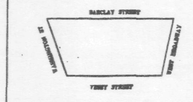

KEY PLAN

No.	Date	Revision
1	3-6-92	

No.	Date	Revision
1	3-17-90	ISSUED FOR BULLETIN #III
2	5-1-90	ISSUED FOR BULLETIN #III
3	5-17-90	ISSUED FOR BULLETIN #IV
4	7-30-90	ISSUED FOR CODED CP 90-3
5	8-28-90	ISSUED FOR BULLETIN No. 6B
6	10-10-90	ISSUED FOR BULLETIN #V
7	11-9-90	ISSUED FOR 45TH FL TENANT
8	12-1-90	ISSUED FOR BULLETIN #6
9	1-11-91	REVISED AS CIRCLED
10	10-8-91	REVISED AS CIRCLED
11	10-30-91	FIELD ORDER #58
12	11-15-91	REVISED AS CIRCLED
13	2-24-92	ISSUED FOR BASE BUILD-OUT FOR SECURITIES EXCHANGE
14	5-22-92	REVISED AS CIRCLED
15	7-6-92	REVISED AS CIRCLED
16	3-1-93	ISSUED TO F.A. FOR REVIEW

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SCHEDULE

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Project No.
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Scale
Sheet No. HVAC-55

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